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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,540	01/22/2002	Hyun-Ho Kim	5649-926	5971
20792	7590	05/07/2004	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC			PHAM, HOAI V	
PO BOX 37428			ART UNIT	
RALEIGH, NC 27627			PAPER NUMBER	
			2814	

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/054,540	<b>Applicant(s)</b> KIM ET AL. <i>61</i>
	<b>Examiner</b> Hoai V Pham	<b>Art Unit</b> 2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5,7 and 10-12 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-5,7 and 10-12 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☒ All b) ☐ Some \* c) ☐ None of:  
 1. ☒ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-5, 7 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiyama et al. [U.S. Pat. 6,326,315] previously applied, in view of Suga [U.S. Pat. 5,698,463] newly cited.

With respect to claim 1, Uchiyama et al. (figure 1, cols. 5-8) discloses an integrated circuit ferroelectric memory device, comprising:

an integrated circuit transistor (114) having a source region and a drain region (106 and 108) (see col. 5, lines 43-49);

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a ferroelectric capacitor (128) on the integrated circuit transistor (114) having first and second sidewalls, the ferroelectric capacitor (128) having a first electrode (122) adjacent the transistor, a second electrode (126) remote from the transistor and a ferroelectric film (124) therebetween (see col. 6, lines 5-11);

a contact plug (120) connected to the first electrode that electrically couples the ferroelectric capacitor to the source region (108) of the integrated circuit transistor (see col. 5, lines 62-66);

an insulating layer (136) on the first and second sidewalls of the ferroelectric capacitor (128), the insulating layer having a surface that is substantially coplanar with an upper surface of the second electrode (see col. 6, lines 25-30); and

a plate line (139) directly on the ferroelectric capacitor (see col. 6, lines 30-35).

Uchiyama et al. does not disclose the first electrode consisting of a single material and a stripe line adjacent the second electrode and remote from the first electrode. However, Suga discloses that the first electrode (25c) consisting of a single material (see col. 5, lines 35-40) and a stripe line (35) adjacent the second electrode (28c) and remote from the first electrode (see fig. 3 and col. 6, lines 1-5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the first electrode of Uchiyama et al. with of a single material, since it has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. *In re Karlson*, 136 USPQ 184. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the strip line adjacent

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the second electrode and remote from the first electrode, as taught by Suga, into the device of Uchiyama et al. to provide appropriate function of interconnecting in the integrated circuit ferroelectric memory device (see fig. 3 and col. 6, lines 2-4).

With respect to claim 2, Uchiyama et al. discloses that the plate line (139) is directly on the second electrode of the ferroelectric capacitor (see fig. 1).

With respect to claim 3, Uchiyama et al. discloses that the integrated circuit ferroelectric memory device is free of a plug between the plate line (139) and the second electrode (126) (see fig. 1).

With respect to claim 4, Uchiyama et al. discloses that the integrated circuit ferroelectric memory device is free of an insulating layer between the plate line (139) and the second electrode (126) (see fig. 1).

With respect to claim 5, Uchiyama et al. discloses that the second electrode (126) has a width and wherein the plate line (139) is directly on the second electrode (126) across the width (see fig. 1).

With respect to claim 7, Suga does not mention that the stripe line comprises aluminum. However, Uchiyama et al. discloses that aluminum is well known material in

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the art to form wirings (see col. 6, lines 33-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select aluminum as known materials, as taught by Uchiyama et al. to form the stripe line since such material is a good conductor. Moreover, selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co., Inc. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

With respect to claims 10 and 12, Uchiyama et al. discloses that the first electrode (122) and second electrode (126) comprise platinum (col. 6, lines 14-16).

With respect to claim 11, Uchiyama et al. discloses that the ferroelectric film (124) comprises at least one of SBT (col. 8, lines 11-16).

#### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1-5, 7 and 10-12 have been considered but are moot in view of the new ground(s) of rejection.

New limitation of "first electrode consisting of a single material" has overcome the Uchiyama's reference. However, newly cited art Suga discloses the above limitation including the stripe line adjacent the second electrode and remote from the first electrode (see the rejection above).

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
6. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoai V Pham whose telephone number is 571-272-1715. The examiner can normally be reached on 9:30A.M. - 8:00P.M..
8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Hoai Pham". The signature is fluid and cursive, with the first name "Hoai" written more prominently than the last name "Pham".

Hoai Pham  
April 28, 2004